

What's new?

All ventilation units fully eco design compliant

From 01/01/2013 all ventilation units with a fan from 125 W to 500 kW have to comply to the LOT 11 Eco design requirements. As market leader Daikin takes the step to comply with all ventilation units to this by adopting DC fan motors in all ventilation units in scope of this legislation, improving their energy efficiency even further.

Heat reclaim ventilation VAM-FB - VKM-GB(M)

- Better efficiency with DC fan motor
- Optional CO₂ sensor saves energy while maintaining comfort
- Optional M6, F7 and F8 dust filters (for VAM-FB series only)
- Shorter installation time thanks to easy adjustment of nominal air flow rate

Electrical heater for VAM

- Total solution for fresh air with Daikin supply of both VAM and electrical heater
- Increased comfort in low outdoor temperature thanks to the heated outdoor air
- Integrated electrical heater concept (no additional accessories required)
- Standard dual flow and temperature sensor
- Flexible setting with adjustable setpoint
- Increased safety with 2 cut-outs: manual & automatic
- BMS integration thanks to:
 - volt free relay for error indication
 - 0-10V DC input for setpoint control

Daikin air handling units D-AHU professional/easy/energy

- Total solution with Daikin supply of R-410A inverter condensing units or Chillers
- Plug & play concept: factory mounted DDC controller, control box, expansion valve and all other components designed and configured for connecting Daikin ERQ or VRV condensing units
- Highly efficiency heat recovery AHU recovering up to 80% of heat
- Standard G4 filters and optional filters available up to class F7
- 5 pre-defined AHU packages (from 2,000 to 10,000m³/h) make selection quick and easy



SEASONAL EFFICIENCY
Smart use of energy



HRV

Heat reclaim ventilation

Create a high-quality indoor environment

The Daikin HRV (heat reclaim ventilation) unit recovers up to 80% of heat energy lost through ventilation and maintains a comfortable and clean indoor environment without changing the room's temperature.

Save up to **40%** on running costs through integration

Integrating the HRV with Daikin's Sky Air and VRV air conditioning ensures that the system always operates in the most efficient and comfortable way. For example, the free cooling available via the ventilation unit will enable the air conditioning unit to be switched off and so saving running costs.

Thanks to heat recovery and integration, up to 40% of the total running costs can be saved!

HRV by Daikin offers:

High efficiency

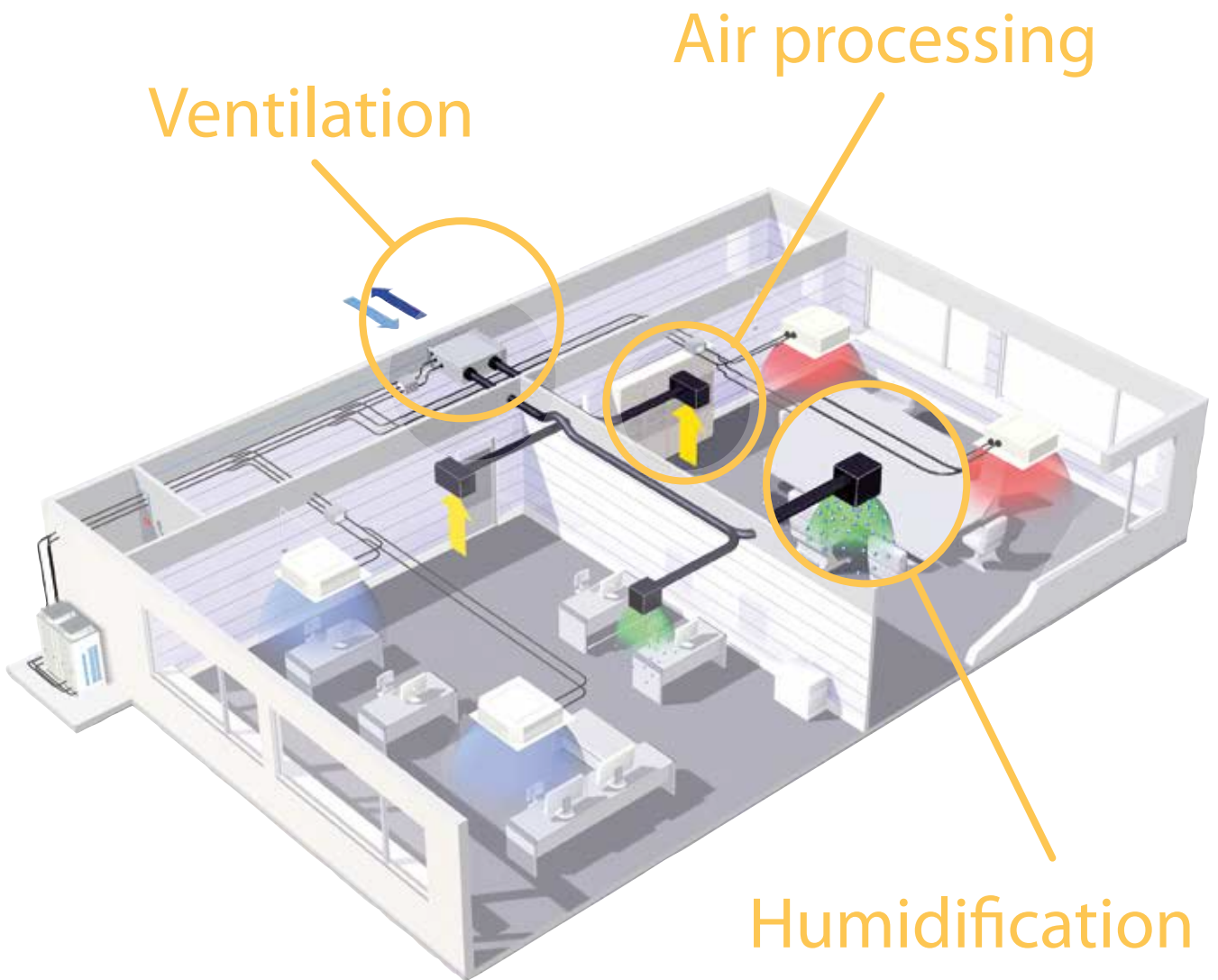
- 40% lower running costs using heat recovery and integration
- Free cooling overnight
- No over-ventilation with optional CO₂ sensor

High indoor air quality

- Perfect comfort thanks to temperature and humidity control
- Clean indoor air with optional medium and fine dust filters

Whisper quiet

- Low operation sound
- Integrate ventilation in a total Daikin solution
- Slim design
- Horizontal or vertical installation (for VAM only)
- High static pressure
- Total fresh air solution with Daikin's supply of VAM and electrical heater



High efficiency

Benefits for building owners

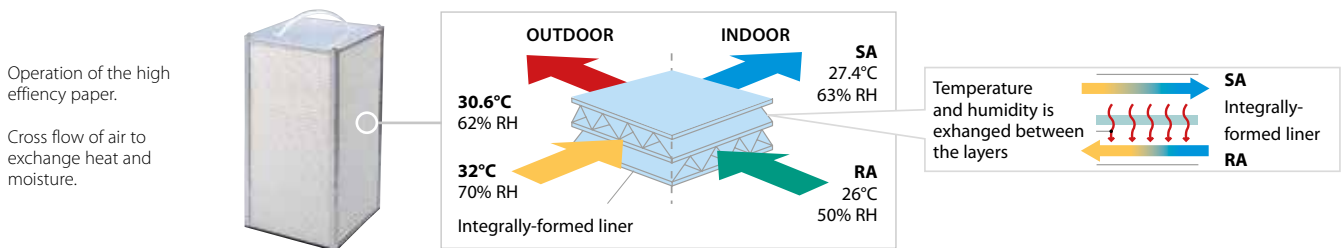
Energy saving ventilation via heat recovery of both heat and humidity

Buildings need ventilation, all year round. However, in traditional ventilation systems, conditioned air from the building is simply expelled, then new unheated air is brought into the building. So a large volume of air is heated up or cooled down unnecessarily, leading to a substantial waste of energy. Daikin's HRV solutions prevent energy being wasted by recovering up to 80% waste heat from the outgoing air, thus offering much greater levels of efficiency, while improving comfort levels too.



Specially developed heat exchange element

The heat exchange element uses a high efficiency paper (HEP) possessing superior moisture absorption and humidifying properties. The heat exchange unit rapidly recovers heat contained in latent heat (vapour). The element is made of a material with flame resistant properties and is treated with an anti-moulding agent.



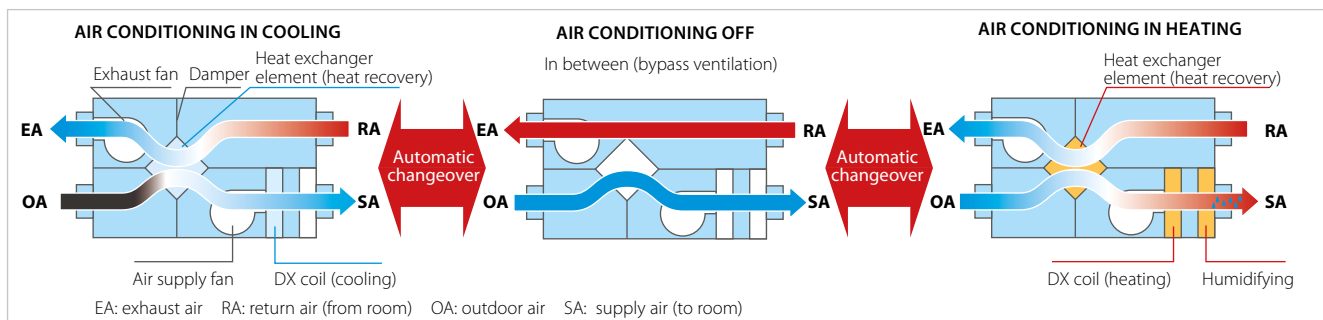
Thanks to the heat and moisture exchange the hot and humid outside air is brought to levels close to indoor conditions saving on the air conditioning running cost and maintaining comfort.

RH: Relative Humidity
SA: Supply Air (to room)
RA: Return Air (from room)

Reduce the load on the air conditioning system by up to 40%

- 24% by using heat recovery ventilation (in comparison with normal ventilation fans)
- 6% by switching over to auto-ventilation mode
- 2% by using the pre-cool, pre-heat control (reduces air conditioning load by running the HRV until after the air conditioning is switched on)
- 5% by enabling the free cooling operation overnight
- 3% by preventing over-ventilation with the optional CO₂ sensor

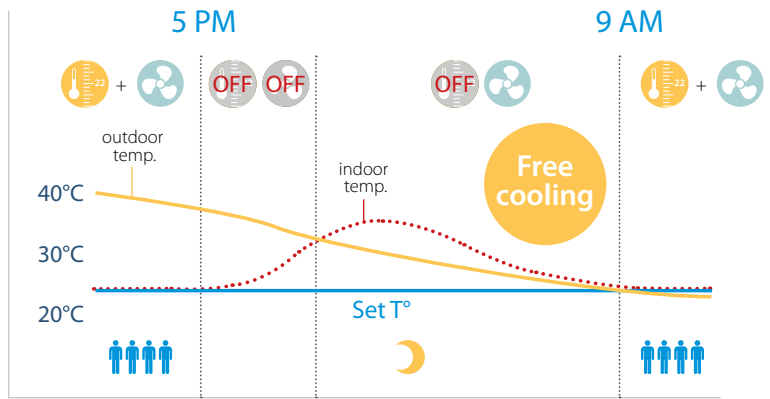
Advantages of integration of ventilation and air conditioning (automatic change over)



Nighttime free cooling

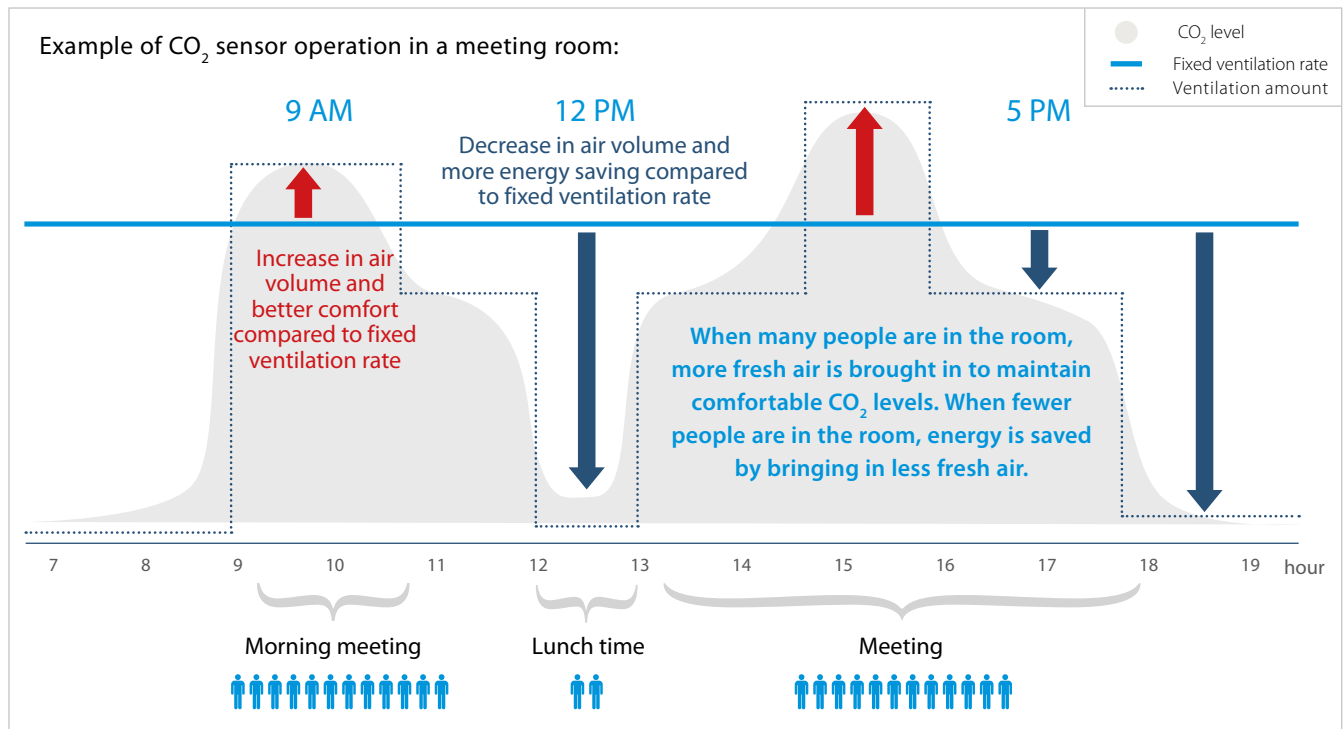
Nighttime free cooling operation is **an energy saving function operating at night** when the air conditioning is switched off. By ventilating rooms containing office equipment that increases room temperature, night purge reduces the cooling load when air conditioning is switched on in the morning, reducing the daily running costs.

The new VAM-FB series can also perform nighttime free cooling in stand alone operation. The set temperature is a field setting at installation.



Prevent energy losses from over ventilation with CO₂ sensor

Enough fresh air is needed to create an enjoyable environment, but ventilating constantly is leading to energy waste. Therefore an optional CO₂ sensor can be installed which switches off the ventilation system when there is enough fresh air in the room, thus saving energy.



Using CO₂ sensors has the most energy-saving potential in buildings where occupancy fluctuates during a 24-hour period, is unpredictable and peaks at a high level. For example office buildings, government facilities, retail stores and shopping malls, movie theaters, auditoriums, schools, entertainment clubs and nightclubs. The ventilation unit's reaction to fluctuations in CO₂ can be easily adjusted by the customer.

All ventilation units fully eco design compliant

From 01/01/2013 all ventilation units from 125 W to 500 kW have to comply to the LOT 11 Eco design requirements on fan motors. As market leader Daikin takes the step to comply with all ventilation units to this by adopting DC fan motors in all ventilation units in scope of this legislation, improving their energy efficiency even further.



Ideal solution for shops, restaurants or offices requiring maximum floor space for furniture, decorations and fittings

Our HRV range of units are not only energy efficient, they also blend in any interior and leave all the maximum of usable floor space. The units are invisible to see and can be installed in service spaces, making service possible while the building is in operation.

High quality indoor air

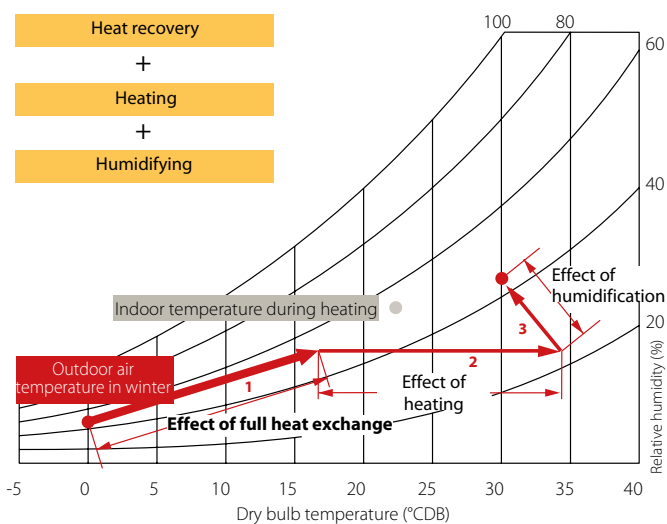
Benefits for end users

Creating a high quality environment

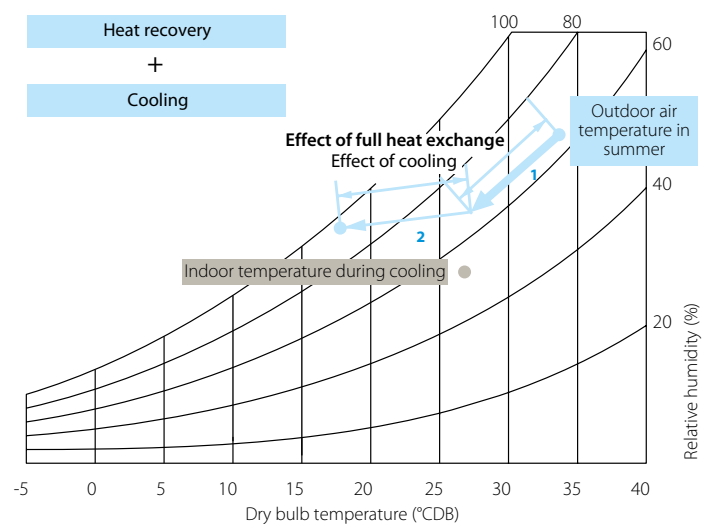
Maintain a comfortable indoor environment without fluctuations in room temperature.

How do the HRV units work?

In heating

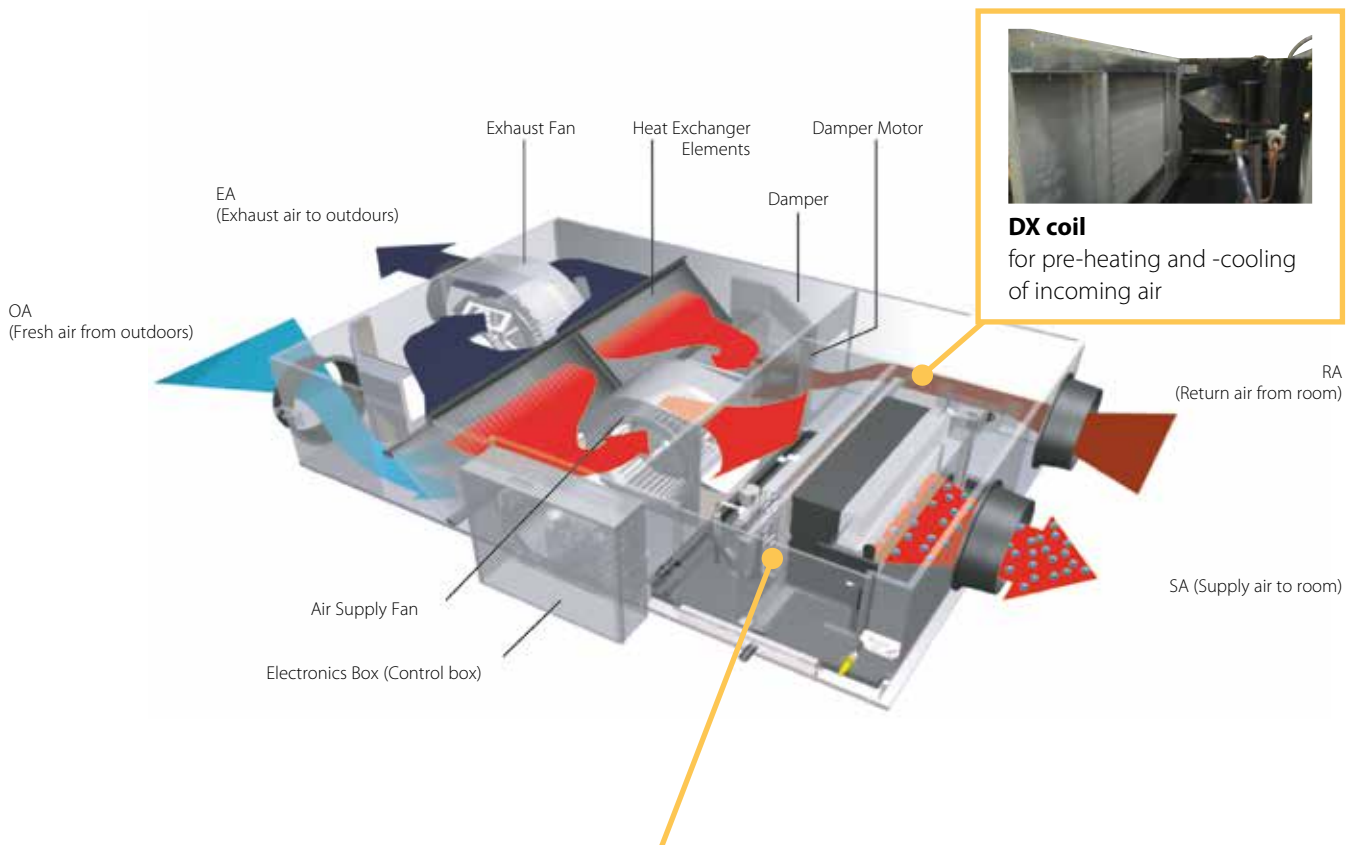


In cooling



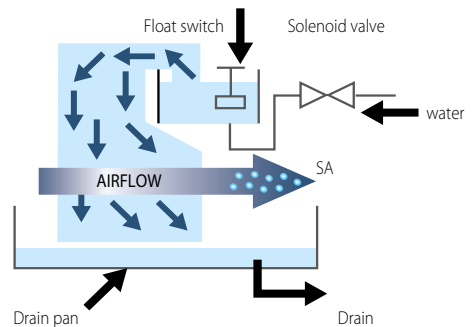
In heating we bring in cold outdoor fresh air and want to avoid cold draught and dry air.	In cooling we bring in hot outdoor fresh air and want to prevent additional load on the air conditioning system and too hot indoor temperatures.
<p>1. Cold outside air is crossed with hot inside air.</p> <p>In the example the incoming air is heated up from 0 to 16°CDB while keeping the same relative humidity. This is the effect of the heat and moisture exchange.</p>	<p>1. Hot outside air is crossed with cold inside air.</p> <p>In the example the incoming air is cooled down from 34 to 27°CDB while keeping the same relative humidity. This is the effect of the heat and moisture exchange.</p>
<p>2. The DX coil further heats up the air to prevent cold draught.</p> <p>In the example the incoming air is further heated from 16 to 34°CDB. Because the air is heated up the relative humidity decreases.</p>	<p>2. The DX coil further cools down the air to prevent hot indoor temperatures and reduce the load on the air conditioning system.</p> <p>In the example the incoming air is further cooled down from 27 to 18°CDB.</p>
<p>3. To counter negative effects of dry air the air passes the humidifier which adds moisture in case needed.</p> <p>In the example the relative humidity rises from 22 to a comfortable 42%.</p>	<p>3. No humidification is needed in cooling as the air is not dried out</p>
The result is incoming fresh air with the same humidity and slightly higher temperature for perfect comfort.	The result is incoming fresh air with a slightly lower temperature for perfect comfort.

Operation of humidification and air processing in heating mode (VKM-GBM)



Humidifier element:

Utilizing the principle of capillary action, water is permeated throughout the humidifier element. The heated air from the DX coil passes through the humidifier and absorbs the moisture.



Optional medium and fine dust filters available

M6, F7 and F8 filters are available on the VAM-FB models to meet your customer request or the local legislation.

As one has no control of the air quality in the building surroundings, you can rely on one of our dust filters to ensure the best indoor air quality possible.



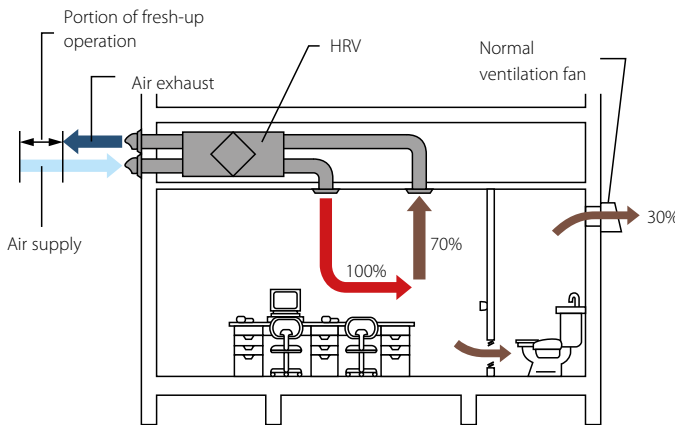
The optional filter comply with
EN779:2012

Can operate in over and underpressure to prevent unpleasant odours

The user can select 2 fresh-up modes via the remote control for a more comfortable air environment.

1. Supply rich mode (overpressure):

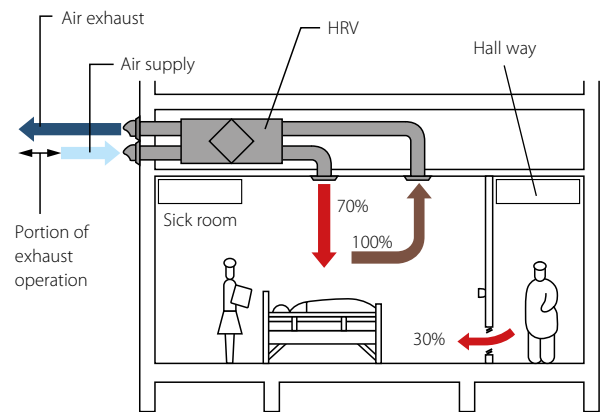
A higher air supply than air exhaust maintains proper room pressure to prevent back-flow of toilet/kitchen odours or moisture inflow.



eg. Office
Preventing that toilet odours flow to the office

2. Exhaust fresh-up (underpressure):

A higher exhaust air than air supply decreases room pressure to prevent the leaking of odours or floating bacteria into other rooms.



eg. Hospital
No bacteria can flow from the sick room to the hall way

Low operation sound level

Continues research by Daikin into reducing operation sound levels has resulted in sound pressure levels down to 20.5dBA (VAM150FA).

Daikin indoor units



DBA	PERCEIVED LOUDNESS	SOUND
0	Threshold of hearing	-
20	Extremely soft	Rustling leaves
40	Very soft	Quiet room
60	Moderately loud	Normal conversation
80	Very loud	City traffic noise
100	Extremely loud	Symphonic orchestra
120	Threshold of feeling	Jet taking off

Maximum flexibility

Benefits for design offices and consultants

One Stop shop

Total solution concept - integrated ventilation

The integration of ventilation into a total building climate system, such as the VRV system, offers numerous advantages. Daikin supplies all components of the entire system, simplifying its design and presenting an ideal solution for the building itself and a 'one-stop' solution for the client.

As well as design benefits, it also simplifies project follow-up, installation and subsequent commissioning and maintenance since only one party is involved.

Finally, the end user benefits from 'interlocking' ventilation with air conditioner operation by virtue of greatly simplified overall system control.

Note: more information on integrated control can be found in the control systems chapter.

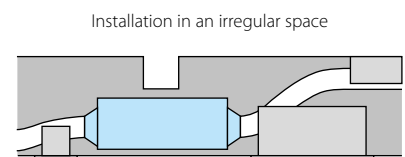
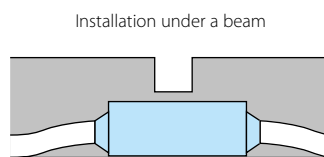
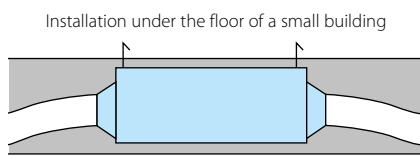
Flexible installation

Slim Design

The slim design of the HRV unit enables it to be mounted in narrow ceiling voids and irregularly shaped spaces.



VAM250FA

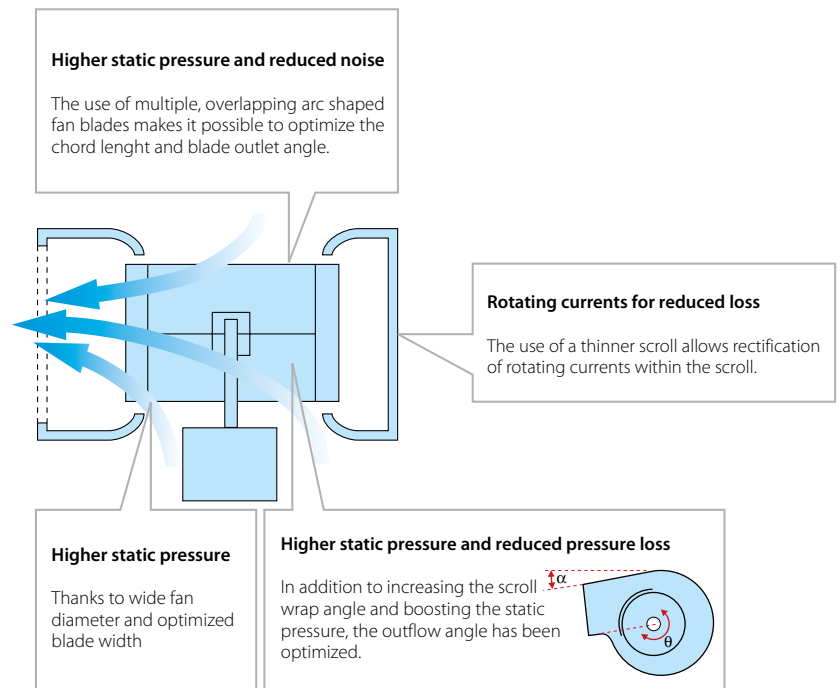


Horizontal or vertical installation

The VAM units can be installed horizontal in false ceilings for example. However if there are no false ceilings or the space is limited the unit can also be installed vertically in narrow service spaces or behind a wall. In this way the the consultant can focus fully on the design of the building.

High Static Pressure

External static pressure (ESP) up to 157 Pa facilitates the use with flexible ducts of varying lengths.



Wide range of units

The wide Daikin range ensures correct equipment design and sizing.

Wide operation range

The HRV unit can be installed practically anywhere.

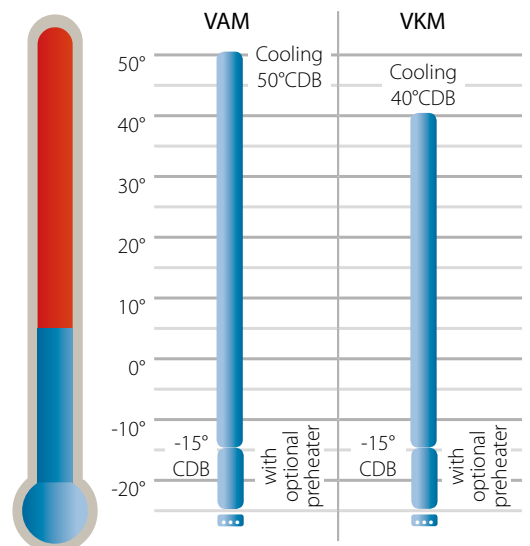
The standard operation range (outdoor temperature) is from -15°C to 40°CDB (50°CDB for VAM units) and can be extended down if a Daikin pre-heater is installed.



¹ Contact your local dealer for more information and restrictions

Daikin's supplied electrical heater VH provides a total solution for fresh air and pre-heating.

- Integrated electrical heater concept (no additional accessories required)
- Standard dual flow and temperature sensor
- Flexible setting with adjustable setpoint
- Increased safety with 2 cut-outs: manual & automatic
- BMS integration thanks to:
 - volt free relay or error indication
 - 0-10V DC input for setpoint control



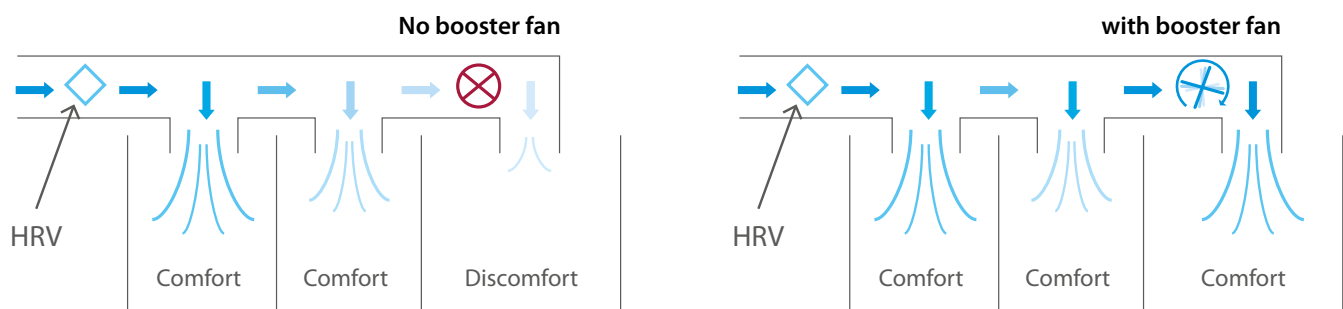
Ensure the most efficient selection via the selection software

The selection software Daikin supplies enables you to make the most optimum selection in the shortest possible time. The software proposes the best suited unit based upon the climate, building and applied ducting and proposes any needed accessories (electrical heater, ...).

Connection to field-supplied booster fan increases flexibility even more

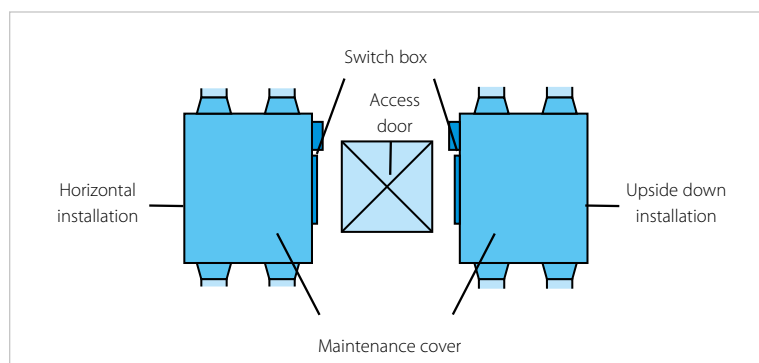
- Allows the installation to be adapted exactly to the installation space, filters, comfort, sound requirements and energy use
- Longer ducting or use of central duct possible
- Overcomes actual field situation when ducting is different from calculation
- Lower cost by using the booster fan instead of replacing with a larger unit when the ESP is not matched
- Can solve limited mounting space for larger VAM1500-2000 units

Example when HRV ESP is not high enough or field situation differs from calculation



The furthest room is not well ventilated because the unit's ESP is too low for the actual field situation. This is overcome with the additional booster fan.

Benefits for installers



Simple Design and Construction

The unit can be installed either horizontally or upside down always allowing easy access for inspection and maintenance.

A 450 mm square inspection hatch enables maintenance and heat exchange element replacement to be performed with ease.

No drain needed

For the VAM-FA/FB models no drain piping is needed, meaning there additional flexibility for the installation of the units.



VAM800FB

Specifications

VENTILATION				VAM150FA	VAM250FA	VAM350FB	VAM500FB	VAM650FB	VAM800FB	VAM1000FB	VAM1500FB	VAM2000FB			
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high	kW	0.116	0.141	0.132	0.178	0.196	0.373	0.375	0.828	0.852		
	Bypass mode	Nom.	Ultra high	kW	0.116	0.141	0.132	0.178	0.196	0.373	0.375	0.828	0.852		
Temperature exchange efficiency - 50Hz	Ultra high/High/Low			%	74/74/79	72/72/77	75/75/80	74/74/77		74/74/76	75/75/76.5	75/75/78			
Enthalpy exchange efficiency - 50Hz	Cooling	Ultra high/High/Low		%	58/58/64	58/58/62	61/61/67	58/58/63		60/60/62	61/61/63	61/61/64	61/61/66		
	Heating	Ultra high/High/Low		%	64/64/69	64/64/68	65/65/70	62/62/67	63/63/66	65/65/67	66/66/68		66/66/70		
Operation mode	Heat exchange mode / Bypass mode / Fresh-up mode														
Heat exchange system	Air to air cross flow total heat (sensible + latent heat) exchange														
Heat exchange element	Specially processed non-flammable paper														
Casing	Galvanised steel plate														
Dimensions	Unit	HeightxWidthxDepth	mm	285x776x525			301x828x816		364x1,004x868		364x1,004x1,156	726x1,512x868	726x1,512x1,156		
Weight	Unit	kg			24		33		52	55	64	131	152		
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high	m³/h	150	250	350	500	650	800	1,000	1,500	2,000			
	Bypass mode	Ultra high	m³/h	150	250	350	500	650	800	1,000	1,500	2,000			
Fan-External static pressure - 50Hz	Ultra high		Pa	69	64	98		93	137	157	137				
Sound pressure level - 50Hz	Heat exchange mode	Ultra high	dBA	27 / 28.5	28 / 29	32	33	34.5	36		39.5	40			
	Bypass mode	Ultra high	dBA	27 / 28.5	28 / 29	32	33.5	34.5	36		40.5	40			
Operation range	Min.	°CDB			-15										
	Max.	°CDB			50										
	Relative humidity	%			80% or less										
Connection duct diameter	mm			100	150		200		250		350				
Air filter	Type														
Power supply	Phase/Frequency/Voltage			Hz/V											
Current	Maximum fuse amps (MFA)			A				15				16			

Total solution for fresh air with Daikin supply of both VAM and electrical heaters

- › Increased comfort in low outdoor temperature thanks to the heated outdoor air
- › Integrated electrical heater concept (no additional accessories required)
- › Standard dual flow and temperature sensor
- › Flexible setting with adjustable setpoint
- › Increased safety with 2 cut-outs: manual & automatic
- › BMS integration thanks to:
 - Volt free relay for error indication
 - 0-10V DC input for setpoint control
- › Capacities ranging from 1 to 2.5 kW



VH Electrical heater for VAM



VKM80-100GB(M)

Specifications

VENTILATION				HEAT RECLAIM VENTILATION, AIR PROCESSING AND HUMIDICATION			HEAT RECLAIM VENTILATION AND AIR PROCESSING			
				VKM50GBM	VKM80GBM	VKM100GBM	VKM50GB	VKM80GB	VKM100GB	
Power input - 50Hz	Heat exchange mode	Nom.	Ultra high	kW	0.270	0.330	0.410	0.270	0.330	0.410
	Bypass mode	Nom.	Ultra high	kW	0.270	0.330	0.410	0.270	0.330	0.410
Fresh air conditioning load	Cooling			kW	4.71 / 1.91 / 3.5	7.46 / 2.96 / 5.6	9.12 / 3.52 / 7.0	4.71 / 1.91 / 3.5	7.46 / 2.96 / 5.6	9.12 / 3.52 / 7.0
	Heating			kW	5.58 / 2.38 / 3.5	8.79 / 3.79 / 5.6	10.69 / 4.39 / 7.0	5.58 / 2.38 / 3.5	8.79 / 3.79 / 5.6	10.69 / 4.39 / 7.0
Temperature exchange efficiency - 50Hz	Ultra high/High/Low			%	76/76/77.5	78/78/79	74/74/76.5	76/76/77.5	78/78/79	74/74/76.5
Enthalpy exchange efficiency - 50Hz	Cooling		Ultra high/High/Low	%	64/64/67	66/66/68	62/62/66	64/64/67	66/66/68	62/62/66
	Heating		Ultra high/High/Low	%	67/67/69	71/71/73	65/65/69	67/67/69	71/71/73	65/65/69
Operation mode	Heat exchange mode / Bypass mode / Fresh-up mode									
Heat exchange system	Air to air cross flow total heat (sensible + latent heat) exchange									
Heat exchange element	Specially processed non-flammable paper									
Humidifier	System		Natural evaporating type						-	
Casing	Material		Galvanised steel plate							
Dimensions	Unit	HeightxWidthxDepth	mm	387x1,764x832	387x1,764x1,214		387x1,764x832	387x1,764x1,214		
Weight	Unit		kg	100	119	123	94	110	112	
Fan-Air flow rate - 50Hz	Heat exchange mode	Ultra high	m ³ /h	500	750	950	500	750	950	
	Bypass mode	Ultra high	m ³ /h	500	750	950	500	750	950	
Fan-External static pressure - 50Hz	Ultra high		Pa	200	205	110	210		150	
Sound pressure level - 50Hz	Heat exchange mode	Ultra high	dBA	38	40		39	41.5	41	
	Bypass mode	Ultra high	dBA	39	41		40	41.5	41	
Operation range	Around unit		°CDB							
	Supply air		-15°C~40°CDB, 80% RH or less							
	Return air		°CDB							
			0°C~40°CDB, 80% RH or less							
On coil temperature	Cooling	Max.	°CDB	-15						
	Heating	Min.	°CDB	43						
Refrigerant	Type		R-410A							
Connection duct diameter			mm	200	250		200	250		
Piping connections	Liquid	OD	mm	6.35						
	Gas	OD	mm	12.7						
	Water supply		mm	6.4		-				
Air filter	Drain		PT3/4 external thread							
	Type		Multidirectional fibrous fleeces							
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/220-240						
Current	Maximum fuse amps (MFA)		A	15						